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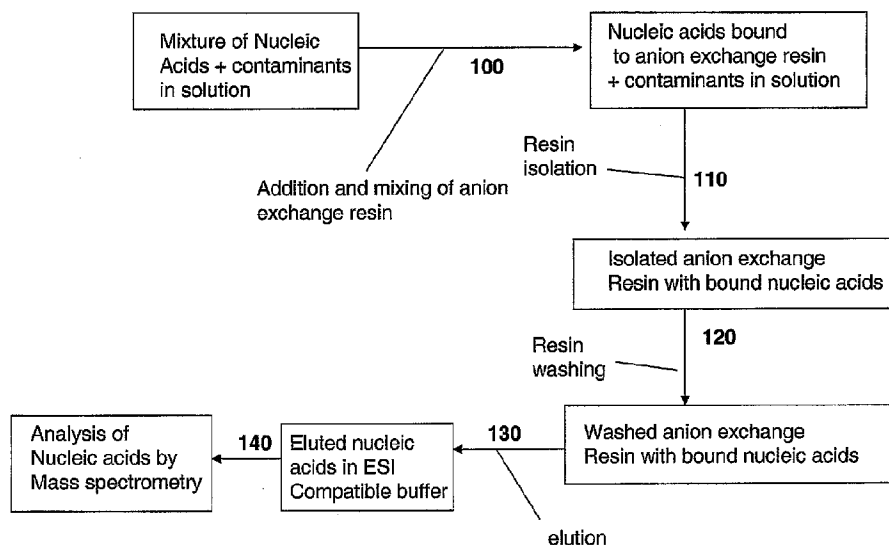
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(54) Title: METHODS FOR RAPID PURIFICATION OF NUCLEIC ACIDS FOR SUBSEQUENT ANALYSIS BY MASS SPECTROMETRY BY SOLUTION CAPTURE

Solution Capture Purification of Nucleic Acids For Analysis by Electropray Mass Spectrometry



(57) Abstract: The present invention provides a method for rapid solution capture purification of nucleic acids for subsequent analysis by electrospray mass spectrometry which is efficient and cost-effective relative to existing methods. The present invention also provides for kits useful for practicing rapid solution capture of nucleic acids so that purified samples are in condition for analysis by electrospray mass spectrometry.

INTERNATIONAL SEARCH REPORT

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PC 1, 052005/033707

A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, EMBASE, MEDLINE, BIOSIS, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X, L	WO 2004/101809 A (ISIS PHARMACEUTICALS, INC; HOFSTADLER, STEVEN, A; CUMMINS, LENDELL, L) 25 November 2004 (2004-11-25) the whole document	1-23
Y	----- JIANG Y AND HOFSTADLER S: "A highly efficient and automated method of purifying and desalting PCR products for analysis by electrospray ionization mass spectrometry" ANALYTICAL BIOCHEMISTRY, ACADEMIC PRESS, NEW YORK, NY, US, vol. 316, 1 May 2003 (2003-05-01), pages 50-57, XP002988067 ISSN: 0003-2697 cited in the application the whole document ----- -/--	1-23

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 00/63362 A (ANNOVIS, INC) 26 October 2000 (2000-10-26) the whole document -----	1-23
Y	HAHNER S ET AL: "Analysis of short tandem repeat polymorphisms by electrospray ion trap mass spectrometry" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 28, no. 18, 15 September 2000 (2000-09-15), page E82, XP002343082 ISSN: 0305-1048 the whole document -----	1-23
Y	US 6 274 726 B1 (LAUGHARN, JR. JAMES A ET AL) 14 August 2001 (2001-08-14) the whole document -----	1-23
Y	DE 199 43 374 A1 (MAX-PLANCK-GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V) 29 March 2001 (2001-03-29) column 7; example a -----	1-23

INTERNATIONAL SEARCH REPORT

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PC 05/033707

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 2004101809	A	25-11-2004	NONE		

WO 0063362	A	26-10-2000	AU	4367500 A	02-11-2000
			CA	2370656 A1	26-10-2000
			EP	1171584 A1	16-01-2002
			JP	2002541839 T	10-12-2002

US 6274726	B1	14-08-2001	US	6111096 A	29-08-2000

DE 19943374	A1	29-03-2001	WO	0119980 A1	22-03-2001
			EP	1214406 A1	19-06-2002
